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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of	:	Customer Number: 46320
Wendell BOUKNIGHT et al.	:	Confirmation Number: 6588
Application No.: 10/716,688	:	Group Art Unit: 2152
Filed: November 19, 2003	:	Examiner: B. Whipple

For: AUTONOMIC ASSIGNMENT OF COMMUNICATION BUFFERS BY AGGREGATING SYSTEM PROFILES

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Appeal Brief is submitted in support of the Notice of Appeal filed November 30, 2008, wherein Appellants appeal from the Examiner's rejection of claims 1-3 and 14-16.

I. REAL PARTY IN INTEREST

This application is assigned to IBM Corporation by assignment recorded on June 24, 2004, at Reel 014775, Frame 0612.

II. RELATED APPEALS AND INTERFERENCES

Appellants are unaware of any related appeals and interferences.

III. STATUS OF CLAIMS

Claims 1-3 and 14-16 are pending and two-times rejected in this Application. Claims 4-13 and 17-18 have been cancelled. It is from the multiple rejections of claims 1-3 and 14-16 that this Appeal is taken.

IV. STATUS OF AMENDMENTS

The claims have not been amended subsequent to the imposition of the Second and Final Office Action dated September 24, 2008 (hereinafter the Second Office Action).

V. SUMMARY OF CLAIMED SUBJECT MATTER

Referring to Figure 2 and also to independent claim 1, and autonomic buffer configuration method is disclosed. In 210A-D, data flowing through buffers in a communications system is monitored (lines 3-6 of paragraph [0026]). In block 210A, different data sizes for different ones of said data flowing through said buffers are recorded in at least one buffer profile during an established interval of time (lines 6-9 of paragraph [0026]). In step 230, an optimal buffer size is computed based upon a specification of a required percentage of times a buffer must be able to accommodate data of a particular size (lines 2-10 of paragraph [0028]). In block 240, at least one of said buffers is resized without re-initializing said at least one resized buffer (lines 10-11 of paragraph [0028]).

Referring to Figure 2 and also to independent claim 14, a machine readable storage having stored thereon a computer program for autonomic buffer configuration is disclosed. The computer program comprising a routine set of instructions, which when executed by the machine, cause the machine to perform the following steps. In 210A-D, data flowing through

buffers in a communications system is monitored (lines 3-6 of paragraph [0026]). In block 210A, different data sizes for different ones of said data flowing through said buffers are recorded in at least one buffer profile during an established interval of time (lines 6-9 of paragraph [0026]). In step 230, an optimal buffer size is computed based upon a specification of a required percentage of times a buffer must be able to accommodate data of a particular size (lines 2-10 of paragraph [0028]). In block 240, at least one of said buffers is resized without re-initializing said at least one resized buffer (lines 10-11 of paragraph [0028]).

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

1. Claims 1-3 and 14-16 were rejected under 35 U.S.C. § 103 for obviousness based upon Bakshi et al., U.S. Patent No. 6,836,785 (hereinafter Bakshi), in view of Dupont, U.S. Patent No. 6,842,800.

VII. ARGUMENT

THE REJECTION OF CLAIMS 1-3 AND 14-16 UNDER 35 U.S.C. § 103 FOR OBVIOUSNESS BASED UPON BAKSHI IN VIEW OF DUPONT

For convenience of the Honorable Board in addressing the rejections, claims 2-3 and 14-16 stand or fall together with independent claim 1.

As is evident from Appellants' previously-presented comments during prosecution of the present Application and from Appellants' comments below, there are questions as to how the limitations in the claims correspond to features in the applied prior art. In this regard, reference is made to M.P.E.P. § 1207.02, entitled "Contents of Examiner's Answer." Specifically, the following is stated:

> (A) CONTENT REQUIREMENTS FOR EXAMINER'S ANSWER. The examiner's answer is required to include, under appropriate headings, in the order indicated, the following items:
> ...
> (9)(e) For each rejection under 35 U.S.C. 102 or 103 where there are questions as to how limitations in the claims correspond to features in the prior art even after the examiner complies with the requirements of paragraphs (c) and (d) of this section, the examiner must compare at least one of the rejected claims feature by feature with the prior art relied on in the rejection. The comparison must align the language of the claim side-by-side with a reference to the specific page, line number, drawing reference number, and quotation from the prior art, as appropriate. (emphasis added)

Therefore, if the Examiner is to maintain the present rejections and intends to file an Examiner's Answer, the Examiner is required to include the aforementioned section in the Examiner's Answer.

"In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a *prima facie* case of obviousness." In re Rijckaert, 9 F.3d 1531, 1532 (Fed. Cir. 1993) (citing In re Oetiker, 977 F.2d 1443, 1445 (Fed. Cir. 1992)). As noted by the Supreme

Court in KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. 1727, 1741 (2007)(quoting In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)). "rejections on obviousness grounds cannot be sustained by merely conclusory statements; instead there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." Moreover, this analysis should be made explicit. The legal conclusion of obviousness is based on underlying findings of fact including the scope and content of the prior art, the differences between the prior art and the claims at issue, and the level of ordinary skill in the pertinent arts. Id. at 1734. "Secondary considerations such as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented." Id. (quoting Graham v. John Deere Co. of Kansas City, 383 U.S. 1, 17–18 (1966)). Therefore, to properly make a finding of obviousness, a comparison between the applied prior art and the claims at issue must be made to ascertain the differences between what is being claimed and the teachings of the applied prior art.

Moreover, before making a proper comparison between the claimed invention and the prior art, the language of the claims must first be properly construed. See In re Paulsen, 30 F.3d 1475, 1479 (Fed. Cir. 1994); see also, Panduit Corp. v. Dennison Mfg. Co., 810 F.2d 1561, 1567-68 (Fed. Cir. 1987) (In making a patentability determination, analysis must begin with the question, "what is the invention claimed?" since "[c]laim interpretation, . . . will normally control the remainder of the decisional process"); see Gechter v. Davidson, 116 F.3d 1454, 1460 (Fed. Cir. 1997) (requiring explicit claim construction as to any terms in dispute).

Claim 1

At the outset, Appellants note that the Examiner has mischaracterized the teachings of Bakshi. For example, claim 1 recites monitoring data flowing through buffers in a communication system. However, the Examiner's cited passage refers to a single buffer and not a plurality of buffers. Also, the Examiner asserted that Bakshi teachings "computing an optimal buffer size based upon a specification of a required percentage." This assertion, however, is not correct. In this regard, Appellants note that the claimed invention must be considered as a whole. However, by parsing the phrase "a required percentage" from "a required percentage of times a buffer must be able to accommodate data of a particular size," the Examiner is misconstruing the term "required percentage." Moreover, the teachings of Bakshi do not even teach a "required percentage." The percentage referred to in Bakshi is not "required." Instead, the percentage is just a number that alters the capacity of the buffer 302.

Regarding the claimed "required percentage of times a buffer must be able to accommodate data of a particular size," the Examiner identified column 3, lines 24-34 of Dupont. This passage, however, does not teach what the Examiner purports this passage to teach. Instead, this passage teaches that a buffer memory allocator 80 uses packet size information to determine how many of a number of buffer units of each type to allocate. Entirely absent from the teachings of Dupont is the notion of computing an optimal buffer size. Instead, Dupont acts by changing the number of buffers of a particular type.

The question of obviousness does not resolve on whether or not the Examiner can identify within the teachings of the applied prior art the individual elements of the claimed

invention. Instead, the question of obviousness resolves on what common sense modifications the applied prior art suggests to one having ordinary skill in the art at the time of the invention. Moreover, the suggested modifications must also result in a reasonable expectation of a predictable result.

The Examiner's proposed benefit for the modification is "to efficiently allocate buffers for the storage of variable-sized data packets." The Examiner's proposed benefit, however, completely ignores the teachings of Bakshi. Based upon the teachings of Bakshi, whether or not data is efficiently allocated within the buffer 302 is not important. Bakshi varies the size of the buffer to change the delay time of requests waiting in the queue (see column 4, lines 35-44). By decreasing the buffer size, less requests are queued, which reduces the delay time.

The Examiner's proposed benefit also ignores that the teachings that Bakshi teaches a single buffer. As such, Dupont's methodology for allocating buffers is not applicable to Bakshi. Therefore, for the reasons described above, Appellants' position is that one having ordinary skill in the art would not have recognized that the claimed invention, as recited in claims 1 and 14, is obvious in view of the combination of Bakshi and Dupont.

The above arguments (incorporated herein) were previously presented on pages 7 and 8 of the First Response dated June 23, 2008 (hereinafter the First Response). The Examiner's response to Appellants' arguments are found on pages 2-4 of the Second Office Action in the section entitled "Response to Arguments." In responding to Appellants' arguments that the Examiner has mischaracterized Bakshi since claim 1 recites monitoring data flowing through

buffers in a communication system while the Examiner's cited passage refers to a single buffer and not a plurality of buffers, the Examiner asserted the following:

> As to claim 1, Applicant argues the cited passage of Bakshi is directed to a single buffer and not a plurality of buffers. However, when responding to a rejection, the Applicant should consider the grounds of rejection as a whole. In response to Applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The grounds of rejection for claim 1 are both Bakshi and Dupont. Dupont discloses a plurality of buffers (Abstract, ln. 3-9).

At the outset, Appellants note that the Examiner is now relying upon Dupont to teach multiple buffers. Thus, the Examiner is now relying upon Bakshi to teach monitoring data flowing through a buffer and relying upon Dupont to teach multiple buffers. Appellants respectfully disagree with the Examiner's assertion that Dupont teaches multiple buffers. As will be described in much greater detail below, Dupont does not teach multiple buffers. Instead, Dupont teaches a single buffer that can be subdivided into buffer sections. In fact, Dupont's disclosure is directed to teaching how to allocate (by size and number) the number of particular buffer sections within the single buffer. Thus, the Examiner has mischaracterized the scope and content of the applied prior art.

In the first full paragraph on page 3 of the Second Office Action, the Examiner asserted the following:

> Additionally, Applicant argues the Examiner improperly parses "a required percentage" from "a required percentage of times a buffer must be able to accommodate data of a particular size." The Examiner points out that Dupont is relied upon to disclose the language, "a required percentage of times a buffer must be able to accommodate data of a particular size", in its entirety (Col. 3, ln. 24-34).

For ease of reference, the Examiner's cited passage of column 3, lines 24-34 of Dupont is reproduced below:

> The buffer memory allocator 80 is responsible for allocating the buffer units of varying sizes within the buffer memory 50. The buffer memory allocator 80 uses the packet size information obtained by the packet monitor 60 to determine the number of buffer units of each type to allocate. For example, the packet monitor 60 may determine that N packets of size s, and M packets of size b have been received recently. As illustrated in FIG. 2, the buffer memory allocator 80 may then allocate the memory in the buffer storage section 50 to form N buffer units of size s 90 and M buffer units of size b 100.

Also for ease of reference, the claim limitation at issue is:

> computing an optimal buffer size based upon a specification of a required percentage of times a buffer must be able to accommodate data of a particular size.

Notwithstanding the Examiner's assertion that column 3, lines 24-34 of Dupont teaches all of the limitations at issue, Appellants respectfully disagree. The concept of "a required percentage" is absent from this teaching. The term "percentage" or any analogous teaching is completely missing from the Examiner's cited passage. Based upon the cited teachings of Dupont, there is no factual support that Dupont would have considered "a required percentage of times a buffer must be able to accommodate data of a particular size" as a factor to be used in computing an optimal buffer size. Thus, the Examiner has mischaracterized the scope and content of Dupont, and in so doing, the Examiner has failed to set forth a proper *Graham* analysis.

In the second full paragraph on page 3 of the Second Office Action, the Examiner asserted the following:

> Applicant further argues Dupont's cited section (see the preceding paragraph) fails to disclose computing an optimal buffer size. Firstly, Examiner points out that Bakshi is relied upon to disclose this language (Col. 4, ln. 12-16). Secondly, Dupont also discloses computing an optimal buffer size (Col. 3, ln. 24-34).

Appellants recognize that Bakshi teaches computing an optimal buffer size. However, assuming

arguendo that Dupont teaches computing an optimal buffer size based upon the teachings of column 3, lines 24-34, the Examiner's analysis has failed to consider the claimed invention, as a whole. Specifically, the Examiner has failed to explain why one skilled in the art would modify Bakshi's method of calculating an optimal buffer size with Dupont's method of calculating an optimal buffer size. Moreover, as will be discussed in greater detail below, one having ordinary skill in the art would not make such a combination.

In the last full paragraph on page 3 of the Second Office Action, the Examiner asserted the following:

> Applicant argues it would not be obvious to modify Bakshi with Dupont, because Bakshi is concerned with decreasing the buffer size. Examiner recognizes this and points out that Dupont is also concerned with decreasing buffer size (Col. 4, ln. 39-43, "small packets do not have to be stored in large buffer units that could otherwise hold a data packet"). Therefore, it would have been obvious to monitor buffer size in the manner taught by Dupont as it would help Bakshi decrease the buffer size. Additionally, Bakshi's decreasing of buffer size is in response to an overloaded state (Abstract). Therefore, ensuring efficient allocation of buffer size initially would help prevent such an overloaded state.

The Examiner's proposal to modify the teachings of Bakshi in view of Dupont render Bakshi inoperable for its intended purpose. Combinations of references that render a prior art device inoperable or fundamentally change the manner of operation of the device have not previously supported a finding of obviousness. See In re Ratti, 270 F.2d 810, 813 (CCPA 1959) ("This suggested combination of references would require a substantial reconstruction and redesign of the elements shown [in the prior art] as well as a change in the basic principles under which [the prior art] construction was designed to operate"), In re Gordon, 733 F.2d 900, 902 (Fed. Cir. 1984) ("the [prior art] apparatus … would be rendered inoperable for its intended purpose").

Contrary to the Examiner's assertion, Appellants did not simply argue "it would not be obvious to modify Bakshi with Dupont, because Bakshi is concerned with decreasing the buffer size." Instead, as argued on page 8, lines 9-11 of the First Response and reproduced above, Bakshi varies the size of the buffer to change the delay time of requests waiting in the queue (see column 4, lines 35-44).

To further clarify this point, Bakshi teaches varying the size of the buffer depending upon the overload status of the server (column 1, lines 49-54). If the server is not overloaded, the buffer can be large (column 1, lines 54-56). However, if the server is overloaded for a predetermined amount of time, the size of the buffer can be reduced, which reduces the number of requests being stored. Subsequently, when the buffer is full, any additional requests arriving at the buffer will be discarded or blocked (column 1, lines 56-61). When the number of requests held in the buffer are reduced (i.e., by reducing the size of the buffer), the delay time for any request entering the buffer can be reduced (column 1, lines 62-64). In this manner, even if the server runs at full capacity, the delay time can be reduced for requests in the buffer (column 1, line 64 through column 2, line 3).

Another important concept to be considered with regard to the teachings of Bakshi is that Bakshi deals with "requests" whereas Dupont acts on "data packets" of an unknown size. As would be recognized by one skilled in the art, a "request" is a specific type of "data packet" with a size that is generally known. As such, referring to column 4, lines 19-22 and column 5, lines 48-49 of Bakshi, the buffer can be sized in number of incoming requests (e.g., "25 incoming

requests," "100 incoming requests") instead of an absolute size of the buffer. If the size of the request was overly variable, Bakshi would not be able to characterize the size of the buffer by the number of incoming requests.

The teachings of Dupont, however, are very different from Bakshi and address a problem not applicable to the teachings of Bakshi. Specifically, Dupont is directed to a buffering system in which data packets of varying sizes are received (column 1, lines 55-56). For example, referring to Fig. 3 of Dupont and column 3, line 60 through column 4, line 14, a buffer memory 50 can be split into three buffer sections 52, 54, 56 respectively having different sizes a, b, c. As a data packet is received, the data packet is allocated to a particular buffer section 52, 54, 56 based upon the size of the data packet. For example, a data packet with a size smaller than a will be directed to buffer section 52. A data packet with a size larger than b but smaller than c will be directed to buffer section 54, and a data packet with a size larger than c will be directed to buffer section 56.

Referring to column 2, line 35 through column 3, line 67, much of Dupont's teachings are directed to how the buffer sections are allocated in terms of size and number. In a preferred aspect, Dupont teaches that a packet monitor 60 monitors incoming data packets to track the size of all the data packets and to track the frequency at which specific packet sizes are received (column 2, lines 47-49). Referring to column 3, lines 24-39, a buffer memory allocator 80 utilizes the packet size information obtained by the packet monitor 60 to allocate the buffer sections by both number of units and by size.

Upon considering the teachings of Bakshi and Dupont, as a whole, one having ordinary skill in the art would recognize that combining Bakshi and Dupont would not be desirable. Although Bakshi is unclear as to this fact, the "requests" of Bakshi are either variable in size or consistent in size. If the requests of Bakshi are variable in size, and the teachings of Dupont are applied to Bakshi, Bakshi would not be able to resize the capacity of the buffer while still having an accurate knowledge of the acceptance limit of the buffer as a whole since the buffer may have a different acceptance limit depending upon the size of the request being submitted and whether there is a buffer section (of the appropriate size) available to store the request.

However, if the requests of Bakshi are similar in size, as evident by the presumptions being employed by Bakshi in calculating the acceptance limit, then the teachings of Dupont would not provide any benefit. If all the data packet sizes are the same, then the result of Dupont's analysis would be allocate all buffer sections with the same size – the size of the request. By analogy, the teachings of Bakshi are comparable to a shoe store having a variable number of shoe racks and the capacity (i.e., number of people in the store) is limited by the number of shoe racks. As such, when the shoe salespeople are busy, the number of shoe racks are reduced, which means any given person within the shoe store gets served just as fast as if the shoe store wasn't busy. By comparison, Dupont teaches keeping track of the number of people and what size shoes they are wearing and varying the number of racks allocated to a particular shoe size based upon this tracking. However, as argued above, Bakshi presumes that the size of the shoe (i.e., the size of the request) is always the same for a person walking in the door. As such, keeping track of the number of people and what size shoes they are wearing and varying the number of racks allocated to a particular shoe size based upon this tracking, as taught by

Dupont, would be a useless process since the number of racks allocated to a particular shoe size would always remain the same.

Therefore, Appellants' position is that one having ordinary skill in the art, when considering modifying Bakshi in view of Dupont, would have recognized that no benefit would be realized by this combination based upon the assumptions being employed by Bakshi.

In the first full paragraph on page 4 of the Second Office Action, the Examiner asserted the following:

> Applicant argues it would further not be obvious to modify Bakshi with Dupont, because Bakshi is directed to a single buffer. Regardless, the benefits of monitoring the size of this single buffer in a manner done for a plurality of buffers in Dupont is directly applicable to Bakshi for the benefits described in the preceding paragraph.

Appellants have already addressed this assertion.

Conclusion

Based upon the foregoing, Appellants respectfully submit that the Examiner's rejection under 35 U.S.C. § 103 based upon the applied prior art is not viable. Appellants, therefore, respectfully solicit the Honorable Board to reverse the Examiner's rejection under 35 U.S.C. § 103.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due under 37 C.F.R. §§ 1.17, 41.20, and in connection with the filing of this paper, including extension of time fees, to Deposit Account 09-0461, and please credit any excess fees to such deposit account.

Date: November 30, 2008

Respectfully submitted,

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VIII. CLAIMS APPENDIX

1. An autonomic buffer configuration method comprising the steps of:

monitoring data flowing through buffers in a communications system;

recording in at least one buffer profile different data sizes for different ones of said data flowing through said buffers during an established interval of time;

computing an optimal buffer size based upon a specification of a required percentage of times a buffer must be able to accommodate data of a particular size; and,

re-sizing at least one of said buffers without re-initializing said at least one resized buffer.

2. The method of claim 1, wherein said recording step further comprises the step of varying delays between consecutive input/output operations in said communications system to affect how much data flows between said communications system and an application coupled to said communications system.

3. The method of claim 1, wherein said monitoring step comprises the step of monitoring said data for each connection in said communications system.

14. A machine readable storage having stored thereon a computer program for autonomic buffer configuration, the computer program comprising a routine set of instructions which when executed by the machine cause the machine to perform the steps of:

monitoring data flowing through buffers in a communications system;

recording in at least one buffer profile different data sizes for different ones of said data flowing through said buffers during an established interval of time;

computing an optimal buffer size based upon a specification of a required percentage of times a buffer must be able to accommodate data of a particular size; and,

re-sizing at least one of said buffers without re-initializing said at least one resized buffer.

15. The machine readable storage of claim 14, wherein said recording step further comprises the step of varying delays between consecutive input/output operations in said communications system to affect how much data flows between said communications system and an application coupled to said communications system.

16. The machine readable storage of claim 14, wherein said monitoring step comprises the step of monitoring said data for each connection in said communications system.

IX. EVIDENCE APPENDIX

No evidence submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132 of this title or of any other evidence entered by the Examiner has been relied upon by Appellants in this Appeal, and thus no evidence is attached hereto.

X. RELATED PROCEEDINGS APPENDIX

Since Appellants are unaware of any related appeals and interferences, no decision rendered by a court or the Board is attached hereto.